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REC'D LIBRARY MAY 12 1916 BUREAU OF PLANT INDUSTRY

PLANT IMMIGRANTS

Descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have recently arrived at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture, together with accounts of the behaviour in America of previous introductions. Descriptions appearing here are revised and published later in the Inventory of Plants Imported.

No. 115. NOVEMBER 1915.

Genera Represented in this Number.

	Page		Page
Annona	938	Lonicera	941
Barleria	938	Macadamia	941, 943
Benincasa	938	Mimusops	941
Betula	938	Osterdamia	942
Caragana	938, 939	Phoenix	942
Cordeauxia	939	Polygonum	942
Cotoneaster	939	Prunus	943, 944
Dipsacus	939	Pyrus	943
Dumoria	939	Randia	943
Elaeagnus	943	Salix	944
Gaultheria	940	Spathodea	943
Jubaeopsis	940	Zea	944

Plates:

Mangifera indica, Cambodiana Mango, natural size.
Amygdalus davidiana, Peach, natural size.

Applications for material listed in these multigraphed sheets may be made at any time to this Office. As they are received they are placed on file, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the annual List of New Plant Introductions.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

Permission to publish on application only.

Annona squamosa L. (Annonaceae.) 41464. Seeds of sugarapple from Saigon, Cochin-China. Presented by Mr. P. Morange, Director of Agriculture. "These seeds are known in Cochin-China under the name *Pomme-cannelle du Cap*, 'Cape cinnamon-apple'. The flesh of fruits of this variety presents when ripe a firm texture, with seeds comparatively rare, and does not split open as is the case with the ordinary variety. This peculiarity allows the transportation of the fruit for long distances, and should certainly make its exportation easy." (Morange.)

Barleria cristata L. (Acanthaceae.) 41458. Cuttings from Manila, Philippine Islands. Presented by the Director, Bureau of Agriculture. "Philippine hedge plant, the best in the tropics. I think it never seeds." (O. W. Barrett.) "An erect or diffuse acanthaceous undershrub with the branches and upper surface of the leaves usually yellow-hairy; often compound, dense, ovate spikes of purple, blue, or white flowers. The corolla is about 1½ inches long, the upper half funnel-shaped and spreading into ovate lobes ½ inch in length. Wild everywhere in the lower hills of Northeastern and Central India and probably in the mountains of Southern India also." (Adapted from Hooker, Flora of British India, Vol. 4, p. 488, 1884.)

Benincasa hispida (Thunb.) Cogn. (Cucurbitaceae.) 41492. Seeds of wax gourd from Chungking, China. Presented by Mr. E. Widler. "*Tung Kwa*. A plant 20 to 30 feet long. Grows best in a climate with ranges in temperature from 70 to 110 degrees F.; takes about 6 months to mature; bears yellow flowers and fruits in the autumn. The fruit is 3 feet long and 2 feet in circumference, used only as a vegetable boiled and sweetened. It sells in the market at 25 cash per cattie." (Widler.)

Betula pendula Roth. (Betulaceae.) 41478. Birch seedlings presented by Mr. Norman M. Ross, Forestry Branch, Indian Head, Saskatchewan, Canada. "These seedlings came from seeds picked during the past 2 or 3 years, from trees grown from seed originally obtained in Russia, the plantations being set out in 1908 as two-year-old seedlings. These trees are planted 4 feet apart each way and show a height of from 12 to 16 feet." (Ross.)

Caragana arborescens var. *prostrata* Lam. (Fabaceae.) 41480. Cuttings of Siberian peatree from Indian Head, Saskatchewan, Canada. Presented by Mr. Norman M. Ross, Forestry Branch. "A seedling grown, among thousands of others from seed picked in our ordinary hedges, probably about five years old, has a spread of about four feet. We find that probably one percent of the seedlings show the pros-

trate characteristics. We think that this form can be used very effectively for many kinds of planting in landscape work." (Ross.)

Caragana pygmaea (L.) DC. (Fabaceae.) 41479. Plants from Indian Head, Saskatchewan, Canada. Presented by Mr. Norman M. Ross, Forestry Branch. A low under shrub with reddish-yellow flowers, found in central Asia from Afghanistan eastward to Tibet and Dauria.

Cordeauxia edulis Hemsl. (Caesalpiniaceae.) 41477. Seeds of the Yeheb nut from Aden, Arabia. Presented by Mr. A. G. Watson, American Vice-Consul, who obtained them from the Governor of Italian Somaliland at Mogadiscio. For description see Plant Immigrants, No. 53, December 1-15, 1910. These are the Yeheb nuts which are so highly prized by the Dolbahanta Somalis that they prefer them to rice and dates. They contain 21% of cane sugar and 13% of proteids. Repeated but unsuccessful attempts have been made to secure them during the past 6 years.

Cotoneaster sp. (Malaceae.) 41494. Seeds from Bariloche, Argentina. Presented by Dr. Joseph Vereertbrugghen. "This plant, *espina blanca* (white thorn), which I found in the canyodon Buriloche, is an evergreen belonging, I believe, to the Chilean vegetation. Animals eat it the year around, and like it very much, horses as well as cattle." (Vereertbrugghen.)

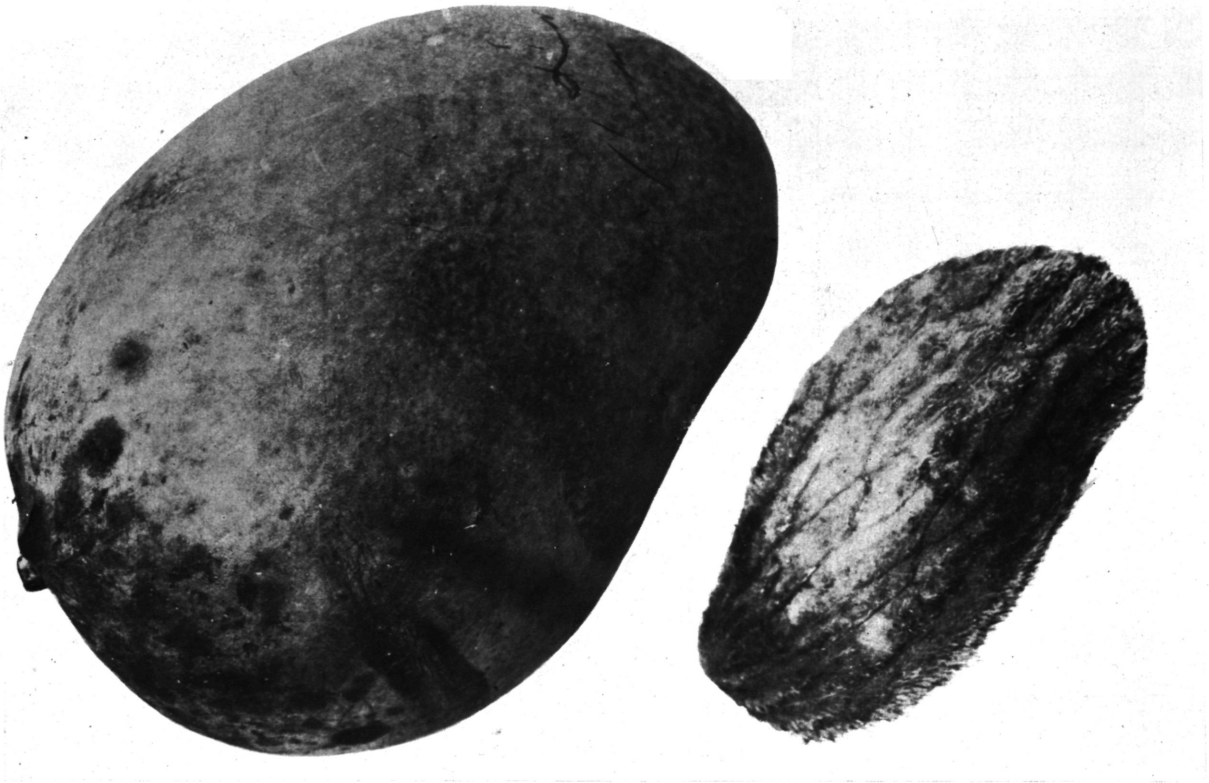
Dipsacus fullonum L. (Dipsacaceae.) 41499. Seeds from Marseille, France. Presented by Mr. A. Gaulin, American Consul General. "The best variety of teasel grown in the Avignon and Department of Vaucluse region. This sample was obtained from Messrs. G. & E. Duckers of Cavaillon, Vaucluse." (Gaulin.)

Dumoria heckeli A. Chevalier. (Sapotaceae.) 41481. Seeds of the *Bako* from Coomassie, Gold Coast Colony, Africa. Presented by Mr. A. E. Evans, Traveling Inspector, Agricultural Department. "A gigantic sapotaceous tree attaining a height of 110-160 feet, with a cylindrical trunk $3\frac{1}{4}$ - $6\frac{1}{2}$ feet in diameter near the base (circumference approximately 10-20 feet), and rising 90 feet or more before bearing branches. Young branches slender, becoming glabrous; and bearing clusters of leaves at the ends. Leaves oblong-lanceolate, attenuate at apex and base, the apex itself often obtuse or sometimes emarginate, papery, undulate margined, glabrous, $2\frac{3}{4}$ - $4\frac{1}{2}$ inches long and 1 - $1\frac{1}{2}$ inches wide. Petioles glabrous, $\frac{3}{4}$ - 1 inch long. Flowers solitary or in small clusters of 2 to 3 in the axils of the leaves. Calyx campanulate. Corolla rotate, greenish-white, $\frac{3}{4}$ inch in diameter, slightly fragrant. Fruit at maturity greenish-yellow, sphero-ovoid, like a russet apple, with

mellow sickening pulp, bitter and nonedible. Geographic distribution - Ivory Coast, Gold Coast, Liberia, in the vast virgin forests. Flowers in May. The timber, reddish with beautiful markings, is one of the best African substitutes for mahogany." (Translation from the original description, Comptes Rendus de l'Academie des Sciences, Paris, Vol. 145, p. 226, 1907.)

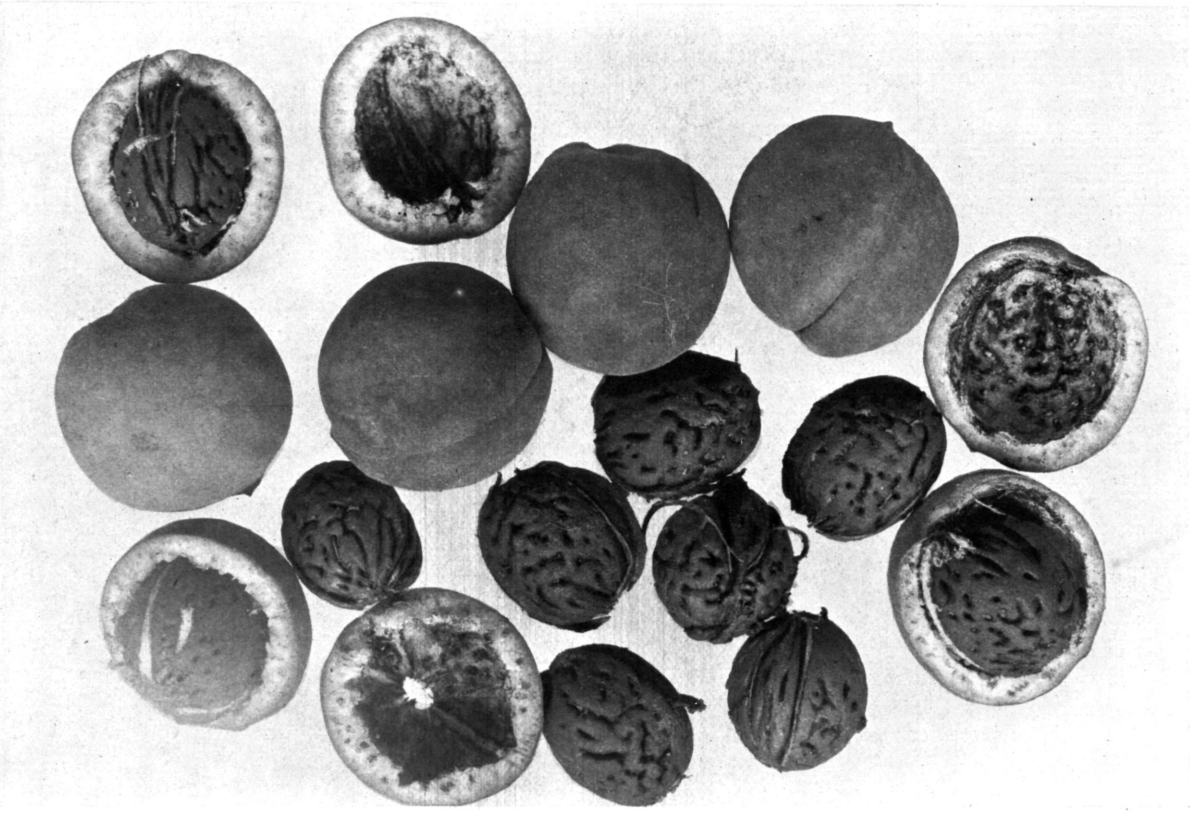
Gaultheria sp. (Ericaceae.) 41556. Seeds from Bhutan, India. Collected by Mr. R. E. Cooper and presented by Bees Limited, Liverpool, England, at the request of Mr. A. K. Bulley. "A low creeping plant on rock surfaces and peaty alpine turf at an elevation of 12,000 feet. Showy blue berries are profuse. This is a much larger plant than the *Gaultheria trichophylla* and exists on exposed rock faces with only a mere suspicion of soil in occasional crevices." (Cooper.)

Jubaeopsis caffra Beccari. (Phoenicaceae.) 41484. Seeds from Johannesburg, Union of South Africa. Purchased from Mr. J. Burtt-Davy, Botanist, Agricultural Supply Association. "I have just learned of the existence of a grove of wild coconut palms along the coast some 70 miles south of Port Shepstone. This appears to be a new species of coconut, adapted to warm temperate conditions; the nuts are said to be smaller than those of the typical *Cocos nucifera*. The fruits have the flavor of coconut, and are much prized by the Pondos, who travel scores of miles to collect and sell them. They are used as food, and I am told for oil." (Burtt-Davy.) "Until quite recently only two genera of palm were known from South Africa. A few years ago Mr. Charles Ross, then conservator of forests at Umtata, reported the occurrence of another kind in Pondoland. This has now been found to be the representative of a new genus, named Jubaeopsis from its nearest ally Jubaea, a monotypic genus of South America (Chili). The fruit of Jubaeopsis differs from that of *Cocos* by the position of the germinating holes, which in the latter genus are situated near the base of the nut, but in Jubaeopsis near its equator. The endosperm is hollow, as in the coconut, and also of a sweetish taste, but without milk. A tree up to 20 feet high, with leaves 12-15 feet long. The staminate flowers are inserted on the upper parts of the branches of the spadix and possess 8-16 stamens, the pistillate flowers being on the lower parts. The fruits are about the size of walnuts, but nearly globular, the fibrous pericarp being yellow when ripe. The palm occurs, as far as known, only at two localities in Pondoland, viz. at the mouths of the Umsikaba and the Umtentu rivers, in both cases on the northern bank and in close proximity to the water. As this



The Cambodiana Mango (S.P.I. No. 8701.)

This variety which was discovered by Mr. David Fairchild in Saigon, Cochin China, in 1902 and introduced in the form of seeds has produced some valuable seedling trees. The fruit represented is from a seedling at the Mayaguez Experiment Station in Porto Rico. Seedlings of the Cambodiana which come reasonably true to type have proven to be early and remarkably sure croppers in Porto Rico, the Isle of Pines, and South Florida. The fruit has its own characteristic flavor which is preferred by some to that of the Indian varieties. It is fiberless, of a golden yellow color, and by many growers is considered a commercial variety because of its regular fruiting habit. It is subject to the attacks of the mango fruit fly in Porto Rico. Natural size photograph, No. 16011, taken by Wilson Popenoe, at Mayaguez, Porto Rico, July 6, 1914.



Fruits and Pits of the Chinese Wild Peach.
(*Amygdalus davidiana.*)

The discovery by Frank N. Meyer that this species of wild peach which produces inedible fruits has been used probably for centuries in China as a stock for many stone fruits has led to its extensive trial for the same purpose in America. Several plantings of commercial peaches, plums, apricots, and almonds budded upon this as a stock have reached bearing age in California and Texas and are unusually promising. Owing to the resistance to cold, drought and alkali of this new stock and the ease with which it can be budded, it appears probable, if supplies of the seed can be raised, that it will form the root system of large commercial peach plantings in California, Utah and Texas. In Oregon the largest nurserymen are attracted by the ease with which it can be worked, and in Minnesota and Iowa trees of it have stood untouched by the low temperatures, even -40° F., which have killed commercial varieties to the ground. It cannot be expected to fruit in any region visited by late frosts, as its buds swell easily in warm, damp weather. Natural size photograph, taken by R. L. Beagles, July 14, 1915, at Chico, Calif., Neg. No. 535.

is, apart from the widely spread coconut palm, the only member of the tribe which occurs in Africa, all the others being American. Its discovery throws some new light on the origin of the Cocoineae and the relationship of our flora." (Marloth, Flora of South Africa, Vol. 4, p. 48.)

Juniperus cedrus Webb. (Pinaceae.) 41463. Seeds from Tenerife, Canary Islands. Collected by Dr. George V. Perez and presented through the Royal Botanic Gardens, Kew, England. "This valuable tree which is nearly extinct is said to be the quickest growing of all Juniperus. I have carefully watched the growth of some in my garden at Villa Orotava and can report an average of over three feet per year. It begins to seed here within 5 years of planting so that its propagation is easy, at any rate in a suitable climate. If treated in the following manner it germinates much more promptly and abundantly. The seed is to be carefully extracted from the gabuli, the extracted seed should tnen be enclosed in a canvas or calico bag, immersed for 10 seconds in boiling water, finally from the boiling water the bag should be immersed in cold water, then sown preferably in heather earth. It is important that plants of our flora should be tried almost exclusively in southern California and perhaps Florida, for although *Juniperus cedrus* stands frost in its natural habitat at great altitudes there is no doubt that our plants ought to be experimented on in climates like ours, where in the coast region we never have frost, and the rains only occur in the winter months. I do not think you can lay too much stress on the fact that seeds I have sent you should be tried only in southern California." (Perez.)

Lonicera sp. (Caprifoliaceae.) 41560. Seeds of honeysuckle from Bhutan, India. Collected by Mr. R. E. Cooper. Presented by Bees Limited, Liverpool, England, at the request of Mr. A. K. Bulley. "A slender bush 6 inches high by stream under Rhododendron and Abies forest at an elevation of 11,000 feet. Has pink, waxy flowers in pairs and very reddish fruits." (Cooper.)

Macadamia ternifolia F. Mueller. (Proteaceae.) 41472. Queensland nuts from Homestead, Florida. Presented by Mrs. L. L. Bow. "You may be interested to know that these nuts make a delicious cake, and I have also used them in sandwiches and salads. My tree is near the laundry and gets a great deal of wash water; it has had very little fertilizer beside the soap suds." (Bow.)

Mimusops elengi L. (Sapotaceae.)41501. Seeds of *Munamal* from Lawang, Java. Presented by Mr. M. Buysmam, Jardin Botanique. "A large evergreen tree, with fleshy leaves, glossy, oval, with nervation slightly emphasized; calyx of

six sepals in two series; corolla rotate with linear appendages; stamens six; six-celled superior ovary; berry with a single seed by abortion. The wood is good for cabinet-making, joinery, and turning. The fruit, which is shaped like an olive, is eaten, but its flavor is not very agreeable. The odorous flowers, which possess astringent and tonic properties, serve for the preparation of a perfume; the red, woody, fibrous bark is astringent, and is used as a febrifuge and a tonic; a decoction is used as a gargle for salivation. The fruits and seeds furnish an oil for burning. The root is astringent." (Lanessan, Les Plantes Utiles des Colonies Francaises.)

Osterdamia tenuifolia (Trin.) Kuntze. (Poaceae.) 41509. Mascarene grass from the Bonine Islands. Presented by Mr. J. B. Thompson, Guam Agricultural Experiment Station. "This grass is used for lawn purposes in Japan and is said to suceed well about Yokohama. It was originally described from the Mascarene Islands. It has been tested in a preliminary way in California, at Biloxi, Mississippi, and at Miami, Florida. The grass makes a very beautiful dark green turf, the leaves being short, never more than an inch or two long, much resenbling the turf of red fescue. Stout rootstocks are produced in abundance and these have a tendency to elevate the turf, a defect which can be remedied by proper rolling. The grass has considerable promise for fine turf and for golf purposes in the South." (C. V. Piper.)

Phoenix farinifera Roxburgh. (Phoenicaceae.) 41507. Seeds of a palm from Matania El Saff, Egypt. Presented by Mr. Alfred Bircher, Middle-Egypt Botanic Station. Habitat, India and South China. A dwarf species, having a stem two feet high, completely enveloped by the leaf sheaths; fronds six feet long, unarmed, pinnate, reclinate, with long, awl-shaped, plicate leaflets; flowers dioecious; spathe poly-valved; spadix erect; fruit a drupe, oval, 1 cm. in length, fleshy, black, hard; stone single, oblong, horny. In Cochin-China the plant goes under the name of Cay-cho-la. The trunk, stripped of its leaves, contains a quantity of certain starch which the poor use in case of need. This palm stands the climate of the south of France without protection. It is adapted to sandy and otherwise dry and barren land, but prefers the vicinity of the sea. (Adapted from von Mueller, Select Extra-Tropical Plants, p. 373; and de Lanessan, Les Plantes Utiles des Colonies Francaises, p. 784.)

Polygonum sp. (Polygonaceae.) 41527. Seeds from Bhutan, India. Collected by R. E. Cooper. Presented by Bees Limited, Liverpool, England, at the request of Mr. A. K.

Bulley. "A clumpy *Polygonum* among stones and peaty spots in gaps in *Rhododendron* forest at an elevation of 13,000 feet. Clump one foot thick or rosette larger. Flower spike large and pendant, rich red, 10 inches long at times. Also seen in rock ledges at its best." (Cooper.)

Prunus sargentii Rehder. (Amygdalaceae.) 41475. Seedlings of Sargent's cherry from New Haven, Connecticut. Purchased from the Elm City Nursery Company. 300 one-year-old seedlings raised from seed obtained from the Arnold Arboretum. To be used in the cherry stock investigation by Department Officials.

Pyrus ovoidea Rehder. (Malaceae.) 41461. Seeds taken from fruit received from the Arnold Arboretum, Jamaica Plain, Massachusetts, where it has never shown signs of pear blight to which disease it may be immune. Growing at the Plant Introduction Field Station, Chico, California, for propagation and testing.

Randia sp. (Rubiaceae.) 41495. Seeds from Orotina, Costa Rica. Presented by Dr. Carlos Wercklé, Trial Grounds, Department of Agriculture. "From the Pacific coast. Is much more beautiful than *Randia aculeata*, but is for hot climate only." (Wercklé.)

Spathodea campanulata Beauv. (Bignoniaceae.) 41500. Seeds from Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, Director, Botanic Gardens. A much branched, West African tree with opposite pinnate leaves, 1 to 1½ feet long, dark green above and paler, somewhat silky beneath in the young stage; large, spreading, terminal racemes of very large showy flowers; corolla at least four inches long and quite as broad. One of the showiest flowering trees of the tropics which has proven hardy in Southern Florida where its masses of large brilliant orange yellow flowers attract a great deal of attention. (Adapted from Curtis Botanical Magazine, 1859, plate 5091.)

NOTES ON BEHAVIOUR OF PREVIOUS INTRODUCTIONS.

Elaeagnus angustifolia. (29225) A large fruited form of the oleaster, called *Djigan*, discovered by F. N. Meyer in Andijan, Turkestan, is doing especially well in the irrigation project area at Fallon, Nevada. In Turkestan the fruits of this variety are sold on the markets and eaten as sweetmeats.

Macadamia ternifolia. (21249) The Queensland Nut. On February 20, 1911, one plant of this species was sent to Mrs. L. L. Bow, of Homestead, Florida, and in September, 1915, she wrote as follows regarding it:

"*The Macadamia ternifolia* (Queensland Nut) sent me in

March, 1911,has become a beautiful tree and last year bore about 25 nuts, - this year it has a very good crop. Would you like to have me send you some nuts by mail?"

We offered to buy the entire crop and she sent us one pound, about one fourth of it, saying -

"I am sorry there are not more, but we have been eating them and giving them away. Please do not offer to pay for them. I am only too glad to send them and hope I can let you have more next year, if you wish them."

To the pound of seed received from Mrs. Bow, the S. P. I. No. 41472 was assigned (see page 941.) For photographs see Label Catalog for 1915-1916, and Plant Immigrants, No. 78.)

Prunus sp. (31652) The Methley plum from Natal, which has attracted attention there because of its earliness and good quality is thought to be a cross between the Satsuma and the myrobalan. Mr. DeVoe, of Tacoma, Washington, reports that a plant sent him February 6, 1913, has grown vigorously. It flowered in 1914 and in 1915 attained a height of six feet, and spread of four feet, and produced a peck of "excellent fruit."

Mr. T. W. McCormack, of Denton, Texas, also states in a letter dated November 29, 1915, regarding this number, that a plant received by him in February of last year, has proved very thrifty, and made fine growth, producing branches over five feet long during the year.

Reports sent from DeLeon, Texas, Vacaville and San Diego, California, are likewise favorable.

The vigorous growth of these young trees in places of such widely different climatic conditions, justifies the recommendation of a thorough trial for this plum throughout the United States.

Salix sp. (22450) A Chinese willow from Pau ting fu, which grows everywhere on the dry lands of North China, made at Fallon, Nevada, a growth of ten feet the first year. Mr. Headley, in charge of the reclamation work, at Fallon, has already distributed a large number of cuttings to settlers on the Project.

Zea mays (9573) Early Malcolm corn. A selection of the Malakoff corn which was introduced by Professor N. E. Hansen, from Russia in 1902, is the only variety which matures regularly in Ottawa, according to information given to Mr. Fairchild last summer. A very sweet variety has been produced by crossing this Early Malcolm with the squaw corn, a low growing variety originated by the Indians of the western plains. A cross between the Early Malcolm and a variety known as the Early Adams, has, in its second filial generation, ripened ten days earlier than either parent.

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